



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,681	07/28/2003	Gilbert N. Riley JR.	112903.128US2	4491
23483	7590	04/04/2008		
WILMERHALE/BOSTON			EXAMINER	
60 STATE STREET			O'NEILL, KARIE AMBER	
BOSTON, MA 02109				
ART UNIT		PAPER NUMBER		
1795				
NOTIFICATION DATE		DELIVERY MODE		
04/04/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

michael.mathewson@wilmerhale.com

teresa.carvalho@wilmerhale.com

sharon.mathews@wilmerhale.com

### Office Action Summary

**Application No.**

10/628,681

**Applicant(s)**

RILEY ET AL.

**Examiner**

Karie O'Neill

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 February 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-90 is/are pending in the application.  
4a) Of the above claim(s) 22-90 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-21 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/5508)  
Paper No(s)/Mail Date 2-11-08  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 4, 2007, has been entered.

Claims 1 and 11 have been amended. Claims 22-90 have been withdrawn from consideration. Therefore, Claims 1-21 are pending in this office action.

### ***Information Disclosure Statement***

2. The Information Disclosure Statement (IDS), submitted February 11, 2007, has been received and considered by the examiner.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an

Art Unit: 1795

application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 5-6, 10, 11-12, 16-17 and 21 are rejected under 35

U.S.C. 102(e) as being anticipated by Chiang et al (US 2003/0082446 A1).

With regard to Claims 1, 11 and 12, With regard to Claims 1, 11 and 12, Chiang et al. discloses in Figures 3A-3D, a bipolar device (10) having an arbitrary form factor the article comprising: (a) a bipolar structure (10) having an anode (12), a cathode (14) and an electrolyte (16) in contact with and separating the anode and cathode (paragraph 0052), wherein the anode (12) and cathode (14) are interpenetrating (paragraph 0052); (b) a cathode current collector (30) that is in electronic communication with the cathode component (14) (paragraph 0052 and Figure 3); (c) an anode current collector (30) that is in electronic communication with the anode component (12) (paragraph 0052 and Figure 3); wherein the bipolar article as a whole has an overall form that is not cylindrical or prismatic. Chiang et al. discloses the bipolar device being a tailorable or customizable device having structures of reticulated interface that can be tailored for purposes of controlling and optimizing charge and discharge kinetics (paragraph 0053).

With regard to Claims 5 and 16, Chiang et al. discloses wherein the anode, electrolyte and cathode are sequentially deposited (paragraphs 0070-0071, Prophetic Example 1).

With regard to Claims 6, 10, 17 and 21, Chiang et al. discloses a device comprising the bipolar article, wherein the bipolar article is an energy storage system, including, but not limited to lithium ion batteries (paragraph 0044).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7-9 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang et al (US 2003/0082446 A1), As applied to Claims 1, 5-6, 10, 11-12, 16-17 and 21, and in further view of Lanni (US 5,949,213).

Chiang et al. discloses the bipolar article in paragraph 4 above, including the bipolar article being a bipolar device, which can be an energy storage device such as a rechargeable battery, but does not disclose wherein the arbitrary configuration of the bipolar article is conformal with at least one surface of the device, wherein the device has a cavity, and wherein the arbitrary configuration of the bipolar article is space-filling within the cavity, and wherein the device is a cellular telephone, laptop computer, personal digital assistant, or the like.

Lanni discloses wherein the battery section, or the bipolar article, is installed in a portable appliance such as a notebook personal computer or mobile telephone (column 4 lines 15-18). Because the battery is installed in the portable appliance means that the battery is conformal to at least one surface of the appliance and fills a cavity within the appliance. Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use the

battery, or bipolar article, of Chiang et al. in a device such as a personal computer or mobile telephone, because Lanni teaches the battery, or bipolar article, provides power/current to the portable appliances.

***Allowable Subject Matter***

7. Claims 2-4 and 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter: the closest prior art, Chiang et al. (US 2003/0082446 A1), does not teach or fairly suggest wherein the cathode current collector is attractive to the cathode network and repulsive to the anode network, and the anode current collector is attractive to the anode network and repulsive to the cathode network, and wherein one or both of the anode and cathode current collectors comprises a coating providing a repulsive force between the current collectors and the opposite anode or cathode network.

***Response to Arguments***

9. Applicant's arguments, see pages 13-16, filed February 4, 2007, with respect to the rejection(s) of claim(s) 1-21 under 35 U.S.C. 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Chiang et al. (US 2003/0082446 A1).

Art Unit: 1795

*Applicant's principal arguments are:*

*(a) Chiang cited in the Office Action (paragraph [0122]) disclose that "an interpenetrating network is formed by self organization of particles," and that "the ability to organize particles of cathodic and anodic materials in such small volumes imparts a complex structure to the components of the device and provides a highly interpenetrating structure" (emphasis added). Thus, this passage describes electrodes and the interface between them having varying interpenetrating topologies or morphologies, rather than suggesting an arbitrary form factor for the bipolar article as a whole.*

In response to Applicant's arguments, please consider the following comments:

(a) Chiang et al. discloses the bipolar device being a tailorable or customizable device having structures of reticulated interface that can be tailored for purposes of controlling and optimizing charge and discharge kinetics (paragraph 0053). Therefore, not only are the passages describing electrodes and the interface between them having varying interpenetrating topologies or morphologies, but it is also disclosed that the bipolar device, as a whole, can take on a customizable and tailored structure.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karie O'Neill whose telephone number is (571)272-8614. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

Art Unit: 1795

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karie O'Neill  
Examiner  
Art Unit 1795

KAO

/Mark Ruthkosky/

Primary Examiner, Art Unit 1795